6.1. Introduction

Every architectural style reflects clearly distinctive basic principles and elements that represent a particular culture and era. The Sikh Shrines are not only the places of worship, but also centres of knowledge, art and architecture. These shrines have greatly influenced the socio-cultural life of the Sikhs and have given continuity to the traditional Sikh values. The evolution of Sikh architecture has followed the original models, like Harmandar Sahib (Amritsar), Darbar Sahib (Tarn Taran) and Khadoor Sahib etc., that were developed from religious consideration by Sikh Gurus. The Sikh religion and its philosophy have greatly influenced Sikh architecture in its evolutionary process which continues till this date. This dissertation through primary documentation, research and theoretical investigation of the existing works on the Sikh architecture tries to bring out the architectural evolution and character of the Sikh shrines.

The Sikh architecture expresses characteristics of the Sikh spirit and represents an image of humility that has been taught by the Sikh Gurus to their followers. The Sikh Architectural style is easily distinguished from others due to its liberal use of onion domes, cusped arches, kiosks, cupolas, chhatris, interesting skylines, and facade treatment by interesting combination of recesses and projections. Use of water as an element of design has been commonly used in the contemporary architecture, but it becomes an integral part of the Sikh architecture, as in the case of Harmandar Sahib at Amritsar and Darbar Sahib at Tarn Taran. It is also evident from the fact that almost all major historical Gurudwaras have sarovar near main shrine.

This chapter analyses the various architectural elements and features provided in the Sikh shrines. It also discusses and analyses the results of the dimensional study of the Gurudwaras, materials and construction techniques used by the Sikhs. The architectural analysis divides a building in uniquely defined architectural elements such as domes, chhatris etc. These elements are discussed in the following sections.

6.2. Dimensional Analysis

This section discusses and analyses the results of the dimensional study of the forty five Gurudwaras covered under the present study. The following points were considered for analysis:

I. Relation and comparison between the height and the time of construction of the Gurudwaras.
II. Relation and comparison between the area of the shrine and the time of
construction of the Gurudwaras.

III. Relation and comparison between the ground coverage and height of the Gurudwaras.

IV. Relation and comparison between the percentage of wall area and the time of construction of the Gurudwaras.

V. Relation and comparison between the length width ratio and the time of construction of the Gurudwaras

The date of construction of these Gurudwaras ranges from the 18th Century to the 21st century. Most of the documented shrines were originally constructed in the period of Sikh supremacy or before that. These shrines, in their present form, are basically reconstruction of the old historical shrines. A sample of forty five historical Gurudwaras was selected. The selection was limited to forty five in number due to the limited availability of the information and the time constraint in documenting these shrines. Details of dimensions of Sikh Shrines are attached at annexure I

6.2.1. Relation between the height and the date of construction of the Gurudwaras

In figure 6.1, Y-axis shows the height of a Gurudwara in meters, and X-axis shows the year of construction. The trend line in the graph shows an upward trend in the height of the Gurudwaras as the time passed. The average value of the height for the Gurudwara is 21.28m with a range from 9.99m to 40.07m. Except one Gurudwara, Baba Atal at Amritsar, which stands tall with a height of 40.07m, no other Gurudwara is having a matching height. Other Gurudwaras constructed during that time period have comparatively low heights, but all have at least a height of 9.99m. It may be due to the belief that a Gurudwara should be visible from a distance.

Figure 6.1: Relation between the height and the date of construction of the Gurudwaras
Though every Gurudwara has another element, a Nishan Sahib, which is visible from a distance, but multiple storeys are also used to add to the height of a Gurudwara. Another observation from this figure is that height of the Gurudwaras has increased considerably after 1950’s. Majority of the Gurudwaras have height more than 15m. This fact may be attributed to the developments in construction technology. It shows that construction of the Gurudwaras is taking place at a larger scale in comparison to the earlier times when a Gurudwara was constructed with the resources the local community had. With the increase in the community size and its economic power, the Sikhs started building larger religious structures.

6.2.2. Relation between the Area and the Date of Construction of the Gurudwaras

Relationship between the ground floor area (ground coverage) and the date of construction of the Gurudwaras has been shown in figure 6.2. It presents the ground floor area (Sqm) of the Gurudwaras studied during this research along Y-axis and their year of construction along X-axis. The figure shows a raised trendline as the years of construction approach the modern times. It shows that the area of the shrines increased with respect to the period of construction. The average value of the area for the Gurudwara is 348.6sqm with a range varying from 46.80sqm at Kothri Sahib at Sultanpur Lodhi to 1062.90sqm at Shaheedan Sahib at Amritsar.

It could be seen in this figure 6.2 that majority of Gurudwaras in the period before 1960s have ground floor area less than 200sqm. But after 1960, areas of only a few shrines lie in this range. Generally a Sikh goes to a Gurudwara twice in a day, when the prayers are held, in the morning as well as in the evening. Local Sikh community gets together regularly to celebrate religious functions such as gurpurabs. A Gurudwara has to be large enough to accommodate the devotees during such gatherings where they can
sit together and listen to the recital of the holy book. With the passage of time, the Gurudwaras has seen a great rush of devotees. Rather than serving a local community, a number of people from far off places visit major historic Gurudwaras. This increase in ground floor area of a Gurudwara may be attributed to several reasons like increased financial power and increase in the size of the community. Rise in spiritual tourism may also be one of the reasons. Due to the improved connectivity and better modes of transportation, people have become more mobile and they visit religious places more frequently.

6.2.3. Relation between the Height and Ground Coverage of the Sikh Shrines

Relationship between the ground coverage and the height of the Gurudwaras has been shown in figure 6.3. It presents the height (meters) along Y-axis and ground coverage (SqM) of the Gurudwaras studied in this research along X-axis. The figure 6.3 shows a raised trendline, as the area of the shrine increased the height of the shrines also increased with a few exceptions. It shows that the area of the shrine increased with respect to the height of the shrine. In the initial phase the Gurudwaras were generally of the smaller area and height with a few exceptions like Baba Atal at Amritsar. Baba Atal is the tallest shrine but its area is comparatively small. Gradually in the later construction, due to the needs of the community and with the availability of better building construction technology and materials, the area as well as the height of the shrines increased.

6.2.4. Relation between the Wall area percentage and Date of Construction of the Gurudwaras

Relationship between the wall area percentage and date of construction of the Gurudwaras has been shown in figure 6.4. It presents the wall area percentage of the
shrine along Y-axis and date of construction of the Gurudwaras along X-axis. The trendline in the figure 6.4 shows that the area under the walls decreased with respect to the date of construction. In the later construction with the availability of better building construction materials and technology, the builders started to build more slender structures. Most of the earlier shrines were masonry structures and these structures generally have wall area on higher side. Later Gurudwaras were constructed using RCC framed structure or combination of R.C.C and masonry. With the use of RCC columns or frames it became possible to construct slender structures. The average value of the wall area on the ground floor for a Gurudwara is 19.36% of the ground coverage with a range varying from 7.53% at Hatt Sahib (Sultanpur Lodhi) to 41.23% at Thara Sahib (Amritsar).

![Figure 6.4: Relation between the Wall area percentage and Date of Construction of the Gurudwaras](image)

6.2.5. Relation between the Length-Width Ratio and Date of Construction of the Gurudwaras

![Figure 6.5: Relation between the Length-Width Ratio and Date of Construction of the Gurudwaras](image)

Relationship between the length-width ratio and date of construction of the Gurudwaras has been shown in figure 6.5. It presents the length-width ratio along Y-axis and date of
construction of the Gurudwaras along X-axis. The figure indicates that the length-width ratio of the Gurudwaras in the initial years was closer to one that means most of the initial shrines were more close to a square shape. With the passage of time, more rectangular shrines were constructed to accommodate more number of devotees. The average value of the length-width ratio for the Gurudwaras is 1.28 with a range varying from 1.00 in case of Burj Sahib (Dhariwal), Pipli Sahib (Amritsar) and Achal Sahib (Batala) etc. to 2.18 at Shaheedan Sahib (Amritsar).

6.3. Elements of Gurudwaras

During the course of study forty five Gurudwaras were documented. Various elements of these shrines like jora ghar, entrances, location and direction of the shrine, location and direction of parkash asthan, plan form and elevations etc. are discussed in the following section. Table containing the detailed information about these elements is attached at Annexure III.

6.3.1. Location of Jora Ghar (Shoe stand)

The provision of jora ghar (Shoe stand) has been made in all the shrines, for proper storage of shoes, where devotees get a token after depositing the shoes. Depending upon the the number of entrances to a shrine, multiple Jora Ghar have been provided in four shrines e.g. Harmandar Sahib (Amritsar), Darbar Sahib (Tarn Taran), Saheedan Sahib (Amritsar) and Fatehgarh Sahib (Fatehgarh Sahib). In five cases Baba Bir Singh (Naurangabad), Saragarhi Sahib (Amritsar), Rakabsar (Muktsar), Datansar (Muktsar) and Fatehgarh Sahib (Anandpur), a jora ghar is provided in the open near the shrine. In
large complexes, provision of a *jora ghar* is made near entry to the site and in case of smaller shrines *jora ghar* may be near to the shrine as shown in figure 6.6 and figure 6.7. In some shrines that are not frequently visited by a large number of devotees a *jora ghar* may be put in the open.

### 6.3.2. Hand Wash Area

The provision of hand wash area has been made in all the shrines, so that devotees can wash their hands before entering the shrine (see figure 6.8 and figure 6.9). Normally, a hand wash area is provided near the *jora ghar* and in case of multiple entry points to the shrine, multiple hand wash areas have been provided, e.g. in the case of Harmandar Sahib, Amritsar, Darbar Sahib, Tarn Taran, Saheedaan Sahib, Amritsar and Fatehgarh Sahib, Fatehgarh Sahib.

#### 6.3.3. Feet Wash Area

The provision of feet wash area is distributed as shown in figure 6.10.
The provision of feet wash area has been made in most of the shrines frequently visited by the large number of devotees as shown in figure 6.10 and figure 6.11. Here devotees wash their feet before entering the shrine barefooted. In case of six shrines, where number of visitors is less perhaps because of its location, proper provision for feet wash area has not been made e.g. at Gurudwara Baba Bir Singh (Naurangabad), Fatehgarh Sahib (Anandpur), Rakabsar and Datansar (Muktsar). In these cases, there is a provision for washing hands and people can wash their feet there too, but special arrangement of small depression in flooring containing water for washing feet is not there.

6.3.4. Parikarma (Outer Circumambulatory)

In all the shrines, except Chaula Sahib (Dera Baba Nanak) and San Sahib (Basrke) there is space on all the sides of the shrine which can be used as open parikarma. In case of important historical shrines like Harmandar Sahib (Amritsar) and Darbar Sahib (Tarn Taran), well defined arcaded outer circumambulatory is provided, so that people can walk around the shrine listening the gurbani kirtan before entering the shrine. Where as in case of most of the other shrines, open space is provided around the shrine which can be used as an outer circumambulatory.
6.3.5. Provision of Darshani Deodi (Entry Gateway)

First glimpse of a Sikh shrine is seen through a *darshani deodi*, and one has to pass through this before entering the main shrine. In most of the large shrines complexes *darshani deodi* has been provided. In case of smaller shrines there may not be provision of *darshani deodi*. The provision of *darshani deodi* has been made in twenty two shrines, depending upon the number of entrances to the shrine multiple *darshani deodis* has been provided in two shrines e.g. Harmandar Sahib at Amritsar and Darbar Sahib at Tarn Taran. In thirty one shrines there is no provision of Darshani Deodi as shown in figure 6.14 and figure 6.15.

<table>
<thead>
<tr>
<th>Provision of Darshani Deodi</th>
<th>No Provision</th>
<th>Provision</th>
<th>Multiple Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provision of Darshani Deodi</td>
<td>31</td>
<td>22</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 6.15: Provision of Darshani Deodi

6.3.6. Location of Darshani Deodi

Location of a *darshani deodi* is not standardised as it depends upon the direction/location of the entry points to the site as shown in figure 6.16 and figure 6.17. *Darshani deodis* are provided in almost all the directions without giving preference to any particular direction. In case of eight shrines, a *darshani deodi* is located on Southeast direction, in seven shrines on East direction, in two shrines on North, West and northeast direction and in one shrine on South, Southwest and Northwest Direction.

Figure 6.16: Distribution of Various Directions of Darshani Deodi
6.3.7. **Provision of Kadah Parsad Area**

Here people can pay their offerings and get *kadah parsad* along with the receipt of the amount offered. This *parsad* is then offered at the shrine. The provision of *kadah parsad* area has been made in thirty nine shrines as shown in figure 6.18 and figure 6.19. In case of six shrines there is no provision of where devotees can make offering in the form of *kadah parsad*, for example Baba Bir Singh, (Naurangabad), Chaula Sahib (Dera Baba Nanak), Datansar and Rakabsar (Muktsar) etc. These shrines receive comparatively less number of devotees as these are located near another major shrine in the city.

### 6.3.8. Location of Kadah Parsad Area

The provision of Kadah Parsad area has been made in most of the shrines frequently visited by devotees. This is
located near main entrance to the site in case of six shrines and in case of thirty three shrines it is located near to the main shrine as shown in figure 6.20 and figure 6.21.

6.3.9. Approach to the Main Shrine

Most of the shrines (thirty six) have an approach from the front side as shown in figure 6.22 and figure 6.23. Four shrines are located on the first floor and have approach through a flight of steps, for example Battha Sahib (Dist. Ropar), Bibeksar Sahib (Amritsar), Parivaar Vichora Sahib (Near Ropar) and Tap Asthan Baba Buddha (Ramdass). Two shrines, Harmandar Sahib, Amritsar and Kandh Sahib, Batala have entrance from front as well as from side and three shrines Santoksar Sahib, Amritsar, Akal Takht, Amritsar and Keshgarh Sahib, Anandpur are approached through stairs and have main entry from side.
6.3.10. Movement Pattern towards Shrine

<table>
<thead>
<tr>
<th></th>
<th>Axial</th>
<th>Inclined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement Pattern towards Shrine</td>
<td>36</td>
<td>9</td>
</tr>
</tbody>
</table>

Movement pattern towards the shrine is axial in most of the cases but in some cases inclined pattern has also been adopted because of the location of shrine with reference to entry. In thirty six shrines, eighty percent of the studied shrines, the movement pattern towards the shrine is axial. In case of nine shrines, movement pattern towards shrine is inclined like Keshgarh Sahib and Anandgarh Sahib at Anandpur, Baba Atal and Bibeksar Sahib at Amritsar and Ber Sahib at Sultanpur Lodhi etc. This indicates that there is no fixed movement pattern towards the shrine, it follows the site profile.

6.3.11. Direction of Main Entrance

<table>
<thead>
<tr>
<th>Direction of Main Entrance</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>

Direction of Main Entrance is not standardised. It depends upon the direction/location of the entry points to the site as shown in figure 6.26 and figure 6.27. In case of eleven shrines, main door is located on southeast direction, seven on South direction, six each
on North and East direction, five on Northwest and Northeast direction, three on west direction and two on Southwest direction. This indicates that the main entrance of the shrines is provided in almost every direction without consideration for any specific direction unlike other contemporary religious architectures like Hindu and Islamic architecture.

6.3.12. Entrances

In most of the shrines, entrances have been provided in all the directions and it seems that most of the later shrines have followed the pattern of Harmandar Sahib at Amritsar. However, there are few exceptions. In seven cases, there are entrances on three, two or one side. It may be because of the site constrain as it does not permit entry on all sides or because of the size of the shrine. Forty shrines, eighty nine percent of the studied shrines, have entrances on all the four sides as shown in figure 6.28 and figure 6.29. Two shrines Keshgarh Sahib (Anandpur) and Datansar (Muktsar) have entrances on three sides, Bibeksar Sahib (Amritsar) has entrances on two sides, and two shrines Thara Sahib (Amritsar) and Kothri Sahib (Sultanpur Lodhi) have entrance from one side only. Majority of the shrines have entrances on four sides.

<table>
<thead>
<tr>
<th>Entrances</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>One Side</td>
<td>2</td>
</tr>
<tr>
<td>Two Sides</td>
<td>40</td>
</tr>
<tr>
<td>Three Sides</td>
<td>2</td>
</tr>
<tr>
<td>All Sides</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 6.27: Distribution of Various Direction of Main Entrance

Figure 6.28: Distribution of Number of Entrances to the Shrines

Figure 6.29: Number of Entrances to the Shrine
6.3.13. Plinth Level

Eighteen shrines, around 40%, have low plinth level up to 450 mm. Eleven shrines have medium plinth level up to 900 mm. Eleven shrines have high plinth level up to 3000 mm and five shrines have very high plinth above 3000 mm as shown in figure 6.30 and figure 6.31. Only Harmandar Sahib, Amritsar has plinth lower than surroundings. In the initial phase, shrines were constructed by the Sikh Gurus who taught humility and they kept the shrines at low plinth. But in some cases of the later shrines, constructed by the followers, the plinth is kept higher as they held Gurudwaras in high esteem and have kept them higher than the normal buildings.

6.3.14. Shape of Gurudwara

Variety of shapes has been used in the construction of Sikh shrines, but mainly shrines
are square or rectangular in shape. Thirteen shrines are square in shape like Darbar Sahib (Tarn Taran), Burj Sahib (Dhariwal) and Pipli Sahib (Amritsar) as shown in figure 6.32 and figure 6.33.

Ten shrines are rectangular in plan like Thara Sahib (Khadoor Sahib), Shaheedan Sahib and Chheharta Sahib (Amritsar). Four shrines have square plan with octagonal chambers at all the corners Garhi Sahib (Chamkaur Sahib), Tap Asthan Baba Buddha (Ramdass) and Katalgarh Sahib (Chamkaur Sahib). Three shrines have octagonal shape e.g. Akal Takht Sahib (Amritsar), Lohgarh Sahib and Holgarh Sahib (Anandpur Sahib). Two shrines have rectangular plan with octagonal chamber at corners like Hatt sahib (Sultanpur Lodhi) and Fatehgarh Sahib (Anandpur Sahib). Two shrines have rectangular with octagonal chamber at two corners Keshgarh Sahib (Anandpur Sahib) and Manji Sahib (Alamgir), Square/Rectangular plans with entrance lobby in front Sahib (Anandpur Sahib) and Darbar Sahib (Dera Baba Nanak).

Four shrines have cruciform plan like San Sahib (Baserke), Janam Asthan Patsahi Chhevin (Vadali) and Bir Baba Buddha and five have miscellaneous shapes. This indicates that the form of the Gurudwara is also not standardised and various forms has been used in these shrines.

6.3.15. Location of Parkash Asthan

Location of the parkash asthan varies in Sikh shrines. In twenty four shrines, a parkash asthan has been provided towards back of the main hall so that more sitting capacity can be provided in the front. In nineteen shrines, a parkash asthan has been provided in the center of the shrine and in two cases Akal Takht (Amritsar) and State Gurudwara (Kapurthala), a parkash asthan has been provided in front of the hall as shown in figure 6.34 and figure 6.35. Location of the parkash asthan is not standardised, normally it is in the center in case of square and octagonal shrines. In case of rectangular shrines, it is either towards front or back of the main hall.
6.3.16. Shape of parkash asthan

The shape of the parkash asthan is not standardised it may be square, octagon or rectangular (as shown in figure 6.36 and figure 6.37). Twenty one shrines have parkash asthan with square shape e.g. Gurudwara Holgarh Sahib (Anandpur), Harmandar Sahib (Amritsar), and Janam Asthan Patsahi Chhevin (Vadali). Twenty one shrines have parkash asthan with rectangular shape e.g. Gurudwara Chhehart Sahib (Amritsar), Tap Asthan Baba Buddha (Ramdass), and Garhi Sahib (Chamkur Sahib). Three shrines have parkash asthan with octagonal shape e.g. Gurudwara Baba Atal and Shaheedan Sahib (Amritsar) and Lohgarh Sahib (Anandpur).

6.3.17. Direction of Parkash Asthan

Direction of parkash asthan is not standardised as it depends upon the direction of the entrance to the shrine as shown in figure 6.38 and figure 6.39. In case of twelve shrines,
Parkash asthan faces southeast direction, in eight shrines Parkash asthan faces south direction, in six shrines it faces east direction, in five shrines it faces north and northwest direction, in four shrines it faces northeast direction, in three shrines it faces west direction, and in two shrines it faces southwest direction. Parkash asthan of most of the shrines face the direction of the main shrine except in four cases e.g. Akal Thakht Sahib and Santokhsar at Amritsar, State Gurudwara at Kapurthala and Parivaar Vichora Sahib, near Ropar.

### Figure 6.38: Distribution of Various Direction of Parkash Asthan

<table>
<thead>
<tr>
<th>Direction of Parkash Asthan</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2 4 6 8 10 12 14</td>
</tr>
<tr>
<td>North</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

6.3.18. Inner Circumambulatory

In majority of the shrines, forty in number, single inner circumambulatory (Parikarma) have been provided for movement around the parkash asthan. In case of Katalgarh Sahib (Chamkaur Sahib) double inner circumambulatory has been provided, and in case of four shrines namely Parivaar Vichora Sahib (Near Ropar), Chaula Sahib (Dera Baba Nanak), Kothari Sahib (Sultanpur Lodhi) and Datansar (Muktsar), no inner circumambulatory has been provided as shown in figure 6.40 and figure 6.41. In rest of the shrines, a single circumambulatory path has been provided around the parkash asthan.
6.3.19. Double Height Area

Double height congregation hall or parkash asthan has been provided in majority of the Sikh shrines. Twenty four shrines have a double height main hall or parkash asthan like Harmandar Sahib, Baba Atal and Akal Takht at Amritsar, Burj Sahib at Dhariwal and Bir Baba Buddha near Amritsar. Twenty one shrines do not have a provision of double height like Kothri Sahib and Ber Sahib at Sultanpur Lodhi, Thara Sahib at Khadoor Sahib, Thara Sahib at Amritsar and Baba Bir Singh at Naurangabad as shown in figure 6.42 and figure 6.43.

Majority of the shrines, with more than one floor, have double height area, so that people sitting on upper floor can also have a view of the parkash asthan and they can listen to the gurbani recitation. These shrines have followed the model of Harmandar Sahib at Amritsar.

Figure 6.43: Double Height Area

<table>
<thead>
<tr>
<th>Double Height Area</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24</td>
<td>21</td>
</tr>
</tbody>
</table>
6.3.20. Number of Floors

Number of floors varies from one to nine. Seventeen shrines have three floors as shown in figure 6.44 and figure 6.45. In these shrines normally ground and first floor are used for various functions of the shrine and the second floor is provided for giving height to the main dome so that it is visible from distance. Some of the shrines with three floors are Sant Ghat and Hatt Sahib at Sultanpur Lodhi, Burj Sahib at Dhariwal, Angeetha Sahib at Khadoor Sahib and San Sahib at Baserke. Nine shrines have four floors like Katalgarh Sahib and Garhi Sahib at Chamkaur Sahib, Parivaar Vichora Sahib and Battha Sahib near Ropar. Seven shrines are single storeyed structures like Baba Bir Singh at Naurangabad, Thara Sahib at Khadoor Sahib, Rakabsar and Datansar at Muktsar. Five shrines are double storeyed for example Anandgarh Sahib and Fatehgarh Sahib at Anandpur, Kothri Sahib at Sultanpur Lodhi, Darbar Sahib at Dera Baba Nanak. Five shrines are five storeyed structures like Manji Sahib at Alamgir, Akal Takht at Amritsar, Baba Gurditta at Daroli, Tap Asthan Baba Buddha at Ramdass and Janam Asthan Patsahi Chhevin at Vadali. Baba Atal, Amritsar is the tallest shrine with nine floors and Ramsar Amritsar has seven floors. Apart from this there are ten shrines where basement has been provided for example Ramsar, Akal Takht and Thara Sahib Amritsar, Manji Sahib at Alamgir and Janam Asthan Patsahi Chhevin at Vadali. Initial shrines were of less height and as the technology advanced and the financial power of the Sikhs increased they started creating bigger and taller structures.

Figure 6.44: Distribution of Various Number of Floors

Figure 6.45: Number of Floors
6.3.21. Type of Structure

![Type of Structure](image1)

Only three of these shrines have original structure. Most of other structures have been totally renovated or demolished and built by *kar sewaks* and the Sikhs have lost the rich built heritage. Thirteen shrines have new structures which have been constructed after demolishing the old structures as shown in figure 6.46 and figure 6.47. Anandgarh Sahib and Lohgarh Sahib at Anandpur, Akal Takht at Amritsar and Tap Asthan Baba Buddha at Ramdass etc. has been constructed after pulling down of old structures. Twenty nine shrines have structures with major renovations carried out over a period of time like Harmandar sahib and Baba Atal at Amritsar, Baba Bir Singh at Naurangabad, and Burj Sahib at Dhariwal. There are three shrines which have original structures like Saragarhi Sahib at Amritsar, Kandh Sahib at Batala and Datansar at Muktsar. These shrines were constructed in 20th century.

6.3.22. Elevation

Twenty one shrines have an elevation which is symmetrical on all the sides as shown in figure 6.48 and figure 6.49. Most of these shrines are square or octagonal in shape with identical elevation on all sides like Darbar Sahib at Tarn Taran, Burj Sahib at Dhariwal and Pipli Sahib at Amritsar. Twenty three shrines have front and rear side symmetrical and sides
asymmetrical. Most of these shrines are rectangular in shape with main dome placed either towards front or back of the shrine like Keshgarh Sahib at Anandpur Ramsar Sahib, Santoksar Sahib and Harmandar Sahib at Amritsar. Only one shrine, Thara Sahib, Khadoor Sahib has asymmetrical elevation on all sides.

**Figure 6.49: Details of Various Types of Elevations**

### 6.3.23. Entrances Details

Nine shrines have simple trabeated entrance in blind cusped arch through verandah/entrance portico without any special treatment as explained in figure 6.50 and figure 6.51, e.g. Fatehgarh Sahib and Holgarh Sahib at Anandpur, Manji Sahib at Alamgir and Thara Sahib at Khadoor Sahib. Nine shrines have simple trabeated entrance in blind arch without any special treatment around the opening e.g. Parivaar Vichora Sahib, Near Ropar and Bibeksar Sahib at Amritsar etc. Eight shrines have simple trabeated entrance in blind arch with chharti on top of the main entrance e.g. Anandgarh Sahib at Anandpur, Sant Ghat at Sultanpur Lodhi, Thara Sahib at Amritsar and Angeetha Sahib at Khadoor Sahib. Five shrines have simple trabeated entrance without any special treatment around the opening e.g. Santoksar Sahib at Amritsar, Datansar at Muktsar, Darbar Sahib at Tarn Taran, Kothri Sahib at Sultanpur Lodhi and Baba Bir Singh at Naurangabad.

**Figure 6.50: Distribution of various Types of Entrances**
Three shrines have simple trabeated entrance in blind arch with entrance portico and a chhatri on the top e.g. Bir Baba Buddha, Ber Sahib at Sultanpur Lodhi and Katalgarh Sahib, Chamkur Sahib. Three shrines have trabeated entrance in blind arch with decorative detailing around the door and chhatri on the top e.g. Tap Asthan Baba Buddha at Ramdass, Chheharta Sahib at Amritsar and Burj Sahib at Dhariwal. Two shrines have trabeated entrance with decorative detailing around the door e.g. Tibbi Sahib and Rakabsar at Muktsar. Two shrines have simple trabeated entrance with chhatri/ balconied window on the top e.g. Tap Asthan Baba Buddha at Ramdass, Chheharta Sahib at Amritsar and Burj Sahib at Dhariwal. Two shrines have trabeated entrance with decorative detailing around the door e.g. Tibbi Sahib and Rakabsar at Muktsar. Two shrines have simple trabeated entrance with chhatri/ balconied window on the top e.g. Tap Asthan Baba Buddha at Ramdass, Chheharta Sahib at Amritsar and Burj Sahib at Dhariwal.

6.3.24. Placement of Shrine on the Site

Placement of a shrine on its site is not standardised as it may be placed in the center of the site or off center depending upon the site constraint as shown in figure 6.52 and figure 6.53. Twenty five shrines have been placed off center on the site e.g. Keshgarh Sahib at Anandpur, Angeetha Sahib and Thara Sahib at Khadoor Sahib, Chheharta Sahib and Thara Sahib at Amritsar and Bir Baba Buddha. Twenty shrines are placed in the center or nearly center of the site e.g. Janam Asthan Patsahi Chhevin at Vadali, Harmandar Sahib at Amritsar, Baba Gurditta at Daroli, Ber Sahib at Sultanpur Lodhi and Garhi Sahib at Chamkaur Sahib.
Separate congregation hall is provided in twenty nine shrines as explained in figure 6.54 and figure 6.55, e.g. Burj Sahib at Dhariwal, Baba Bir Singh at Naurangabad, Bir Baba Buddha, Chheharta Sahib at Amritsar, San Sahib at Baserke and Tap Asthan Baba Buddha at Ramdass etc. These are provided to hold special functions like kirtan darbar, administrative gatherings etc. In cities, where many historical shrines are located, congregation hall is provided in the main shrine only e.g. at Anandpur, a congregation hall is provided near Keshgarh Sahib only. Similarly at Amritsar only one congregation hall (Manji Sahib) is provided in the Harmandar Sahib Complex. In sixteen shrines, no provision has been made for a congregation hall. These are the shrines either small in size or are located near some prominent shrine e.g. Janam Asthan Patsahi Chhevin (Vadali), Hatt Sahib,
Kothri Sahib and Sant Ghat at Sultanpur Lodhi, Garhi Sahib and Katalgarh sahib at Chamkaur Sahib and Thara Sahib, at Khadoor Sahib.

6.3.26. Provision of Sarovar (Holy Tank)

<table>
<thead>
<tr>
<th>Provision</th>
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![Figure 6.56: Provision of Sarovar](image)

Provision of sarovar is provided in twenty one shrines as shown in figure 6.56 and figure 6.57, e.g. Harmandar Sahib and Chheharta Sahib at Amritsar, Manji Sahib at Alamgir, Baba Bir Singh at Naurangabad, Burj Sahib at Dhariwal and Bir Baba Buddha. In twenty four shrines, there is no provision of sarovar e.g. Holgarh Sahib and Lohgarh Sahib at Anandpur, Janam Asthan Patsahi Chhevin at Vadali Kothri Sahib at Sultanpur Lodhi and Garhi Sahib at Chamkaur Sahib. The sarovar is not provided in the twenty four shrines because either the size of the site does not permit or shrine is part of a complex already having a sarovar.

6.3.27. Shape of Sarovar

Sarovar of fourteen out of twenty one shrines is rectangular in shape as shown in figure 6.58 and figure 6.59, e.g. Gurudwara Ber Sahib and Hatt Sahib at Sultanpur Lodhi, Keshgarh Sahib at Anandpur, Tap Asthan Baba Buddha at Ramdass and Burj Sahib at Dhariwal. Six shrines have square sarovar such as Bir Baba Buddha, Chheharta Sahib at Amritsar, San Sahib at Baserke, Datansar at Muktsar, Manji Sahib at Alamgir and...
Baba Bir Singh at Naurangabad. Harmandar Sahib at Amritsar has a parallelogram shaped sarovar.

6.3.28. Provision of Langar Building

Provision of langar building has been made in thirty four shrines as shown in figure 6.60 and figure 6.61. E.g. Harmandar Sahib (Amritsar), Manji Sahib (Alangir), Baba Gurditta (Daroli), Janam Asthan Patsahi Chhevin (Vadali). In eleven shrines no provision of langar building have been made e.g. Thara Sahib (Amritsar), Thara Sahib (Khadoor Sahib), Saragarhi Sahib (Amritsar), Chaula Sahib (Dera Baba Nanak), Tibbi Sahib, Rakabsar and Datansar at Muktsar. All these shrines are either located near some prominent shrine or are part of a complex with provision of the langar building.
6.3.29. Location of Nishan Sahib

A Nishan Sahib is provided in all the shrines. It is located in front of the shrine in thirty two cases, as shown in figure 6.62 and figure 6.63, e.g. Manji Sahib (Alamgir), Baba Bir Singh (Naurangabad), Chheharta Sahib (Amritsar), Burj Sahib (Dhariwal), Bir Baba Buddha, Keshgarh Sahib, Anandgarh Sahib and Lohgarh Sahib at Anandpur. In nine shrines, the nishan sahib is fixed on side of the shrine e.g. Sisganj Sahib, (Anandpur), Thara Sahib, Pipli Sahib and Santoksar Sahib at Amritsar, Darbar Sahib, Dera Baba Nanak and Kandh Sahib, Batala. In two shrines, Parivaar Vichora Sahib (Near Ropar) and Harmandar Sahib (Amritsar), the nishan sahib has been fixed on top of shrine. In Tap Asthan Baba Buddha (Ramdass) and Akal Takht (Amritsar), the nishan sahib has been fixed on top of shrine as well as in front of the shrine. The nishan sahib has been provided in all the shrines irrespective of size, although its location varies.

6.3.30. Provision of Sarai

A Sarai has been provided in thirty shrines as shown in figure 6.64 and figure 6.65, e.g. Keshgarh Sahib (Anandpur), Harmandar Sahib (Amritsar), Burj Sahib (Dhariwal), Baba Bir Singh (Naurangabad), Bir Baba Buddha, Chheharta Sahib (Amritsar), and Manji Sahib (Alamgir) etc. In fifteen shrines, there is no provision for the stay of pilgrims e.g. Chaula Sahib (Dera Baba Nanak),
Saragarhi Sahib (Amritsar), Holgarh Sahib, Anandgarh Sahib and Lohgarh Sahib at Anandpur, Tibbi Sahib, Rakabsar and Datansar at Muktsar and Kothri Sahib (Sultanpur Lodhi). These are either small shrines which attract less number of devotees or located near some prominent shrine where sarai has been provided.

From the above explanation of the data of forty five shrines it is clear that the provision of Jora Ghar and hand wash area has been made in all the shrines. There may be multiple Jora Ghars and hand wash area depending upon the number of entrances to a shrine. Feet wash area is provided in most of the shrines that are frequently visited by devotees. Well defined arcaded outer circumambulatory is provided in major historical shrines and in case of most of the other shrines open space is provided around the shrine which can be used as an outer circumambulatory. The provision of Darshani Deodi has been made in many shrines. Depending upon the number of entrances to a shrine, multiple Darshani Deodies have been provided in a few shrines. Location of the Darshani Deodi of a shrine is not standardised as it depends upon the direction/location of the entry points to the shrine.

The provision of Kadah Parsad area has been made in majority of the shrines. Most of the shrines have an approach from the front side. Direction of main entrance is not standardised as it depends upon the direction/location of the entry points to the site. Majority of the shrines have entrances on all the four sides. In few cases, due to site constraint, there are entrances on three, two or one side only. Majority of the shrines have low or medium plinth level, but few shrines have high or very high plinth. Only Darbar Sahib, Amritsar has plinth which is lower than the surroundings.

Sikh shrines do not follow any standard layout. Various forms have been used in these shrines. However, all the shrines fulfil the basic requirements like provision of parkash.
asthan, sukhashan room, room for akand path etc. Location of the parkash asthan is not standardised, normally it is in the center in case of square and octagonal shrines. In case of rectangular shrines, it is either towards front or back of the main hall. Shape of the parkash asthan as well is not standardised. It is either square, octagon or rectangular. The direction of parkash asthan depends upon the direction of the entrance to the shrine. In majority of the shrines parikarma have been provided for movement around the parkash asthan. Most of the shrines with more than one floor have double height area, so that people sitting on upper floor can also have a view of the parkash asthan, and listen to the gurbani recitation. These shrines have followed the model of Harmandar Sahib at Amritsar. Initial shrines were of lesser height and as the technology advanced and the financial power of the Sikhs improved they started creating bigger and taller structures. Number of floors varies from one to nine. Majority of the original structures have been totally renovated or demolished to be rebuilt by kar sewaks. Only three shrines, out of all the shrines included in this study, have original structure. The Sikhs, in due course of time, have lost their rich built heritage.

Most of the square or octagonal shrines have symmetrical elevation on all the sides. The rectangular shrines, generally, have front and rear side symmetrical and other two sides asymmetrical with main dome placed either towards front or back of the shrine. Entrances to the shrines have varied detailing. It may be a simple trabeated opening in blind cusped arch through verandah/entrance portico without any special treatment. In some cases, it is simple trabeated in blind arch without any verandah/entrance portico and any special treatment around the opening. In few cases, there is chhatri on the top of the main entrance. There may be an entrance with portico and a chhatri on the top. Nishan Sahib has been provided in all the shrines irrespective of their size, although its location varies. Another important element of a Gurudwara complex is a congregation hall. It is provided to hold special functions like kirtan darbar, administrative gatherings etc. In cities where many historical shrines are located, it may be provided in the main shrine only.

A sarovar is provided in majority of the shrines. In some cases, a sarovar may not be there, either due to the reason that the size of the site does not permit or shrine is part of a complex already having a sarovar. Provision of a langar building has also been made in majority of the shrines. Non availability of a langar building in a shrine may be due to its proximity to some prominent shrine or it being part of a complex with provision of the langar building. A Sarai has also been provided in majority of the shrines.
6.4. Plan Forms

Varied plan forms have been used in the Sikh shrines. Broadly plan form of Gurudwaras can be classified into the following categories:

6.4.1. Square Plan

Most of the old historical Gurudwaras are square in shape and symmetrical both in plan and elevation, e.g. Gurudwara Darbar Sahib at Tarn Taran, Gurudwara Burj Sahib at Dhariwal, and Gurudwara Pipli Sahib at Amritsar are square in plan.

![Square Plans](image)

Figure 6.66: Square Plans- Burj Sahib (Dhariwal), Darbar Sahib (Tarn Taran) and Pipli Sahib (Amritsar)

6.4.2. Rectangular Plan

Gurudwaras constructed in the recent times are mostly rectangular in plan. With increase in Sikh population and because of the better transportation means, number of devotee visiting the Sikh shrines have increased manifold. This form is mainly used because area of such shrines is large and there is a large space in front of parkash asthan which can accommodate more number of devotees. Some of the examples of rectangular shaped shrines are, Gurudwara Thara Sahib at Khadoor Sahib, Gurudwara Shaheedan Sahib and Gurudwara Chheharta Sahib at Amritsar.

![Rectangular Plan](image)

Figure 6.67: Rectangular Plan- Thara Sahib, Khadoor Sahib, Shaheedan Sahib and Chheharta Sahib, Amritsar
6.4.3. Square with Octagonal Chamber at Corners

Many Gurudwaras have been constructed using a square plan with octagonal chambers at all the corners which usually accommodate stairs or room for akand path. These chambers are topped with domical structure on top, normally similar to the dome of the main shrine. For example, Gurudwara Garhi Sahib at Chamkaur Sahib, Gurudwara Tap Asthan Baba Budha at Ramdass and Gurudwara Katalgarh Sahib at Chamkaur Sahib.

6.4.4. Rectangular with Octagonal Chamber at Corners

These shrines are similar to the above mentioned form with only difference that the main hall of the shrine is rectangular instead of square for example Gurudwara Hatt Sahib at Sultanpur Lodhi and Gurudwara Fatehgarh Sahib at Anandpur Sahib.

6.4.5. Rectangular with Octagonal Chamber at two Corners

In a few shrines, the octagonal chambers are used only at two corners for example Gurudwara Keshgarh Sahib at Anandpur Sahib and Gurudwara Manji Sahib at Alamgir.
6.4.6. **Square/Rectangular plans with entrance lobby in front**

At Gurudwara Anandgarh Sahib at Anandpur Sahib and Darbar Sahib at Dera Baba Nanak, an entrance lobby has been added in front part of the shrine. In both the cases, the entrance lobby has a stair case connecting upper floors. In case of Darbar Sahib at Dera Baba Nanak, a stair case has also been provided to connect upper floors and the basement.

![Figure 6.71: Anandgarh Sahib, Anandpur Sahib and Darbar Sahib, Dera Baba Nanak](image)

6.4.7. **Octagonal Plans**

A few Gurudwaras have been constructed using octagonal shape for example Akal Takht Sahib at Amritsar, Lohgarh Sahib and Holgarh Sahib at Anandpur Sahib.

![Figure 6.72: Baba Atal Sahib, Amritsar, Lohgarh Sahib and Holgarh Sahib, Anandpur Sahib](image)

6.4.8. **Cruciform**

Some of the Gurudwaras are constructed using cruciform having entrance porticos on both the longer sides of the rectangular shrine. These shrines have a overall form similar to cruciform for example Gurudwara San Sahib at Baserke, Gurudwara Janam Asthan Patsahi Chhevin at Vadali and Gurudwara Bir Baba Buddha, Near Amritsar

![Figure 6.73: San Sahib (Baserke), Janam Asthan Patsahi Chhevin (Vadali) and Bir Baba Buddha](image)
6.5. Elevation

The elevation in Sikh shrines is usually treated by dividing the facade into well decorated surfaces with the help of vertical and horizontal divisions. These divisions follow the structural lines of columns, piers, beams, and sunken niches. Normally the area around the fenestrations has more elaborate decoration than the surrounding surfaces. This decoration normally includes geometrical and floral designs in marble cladding or pilaster. In a few cases, decoration work in gold embossing sheets has been used for example Harmandar Sahib at Amritsar and Darbar Sahib at Tarn Taran. Facade of the shrines are decorated with the mouldings, eaves, plasters, etc. normally carved out of bricks because of ease to work into a variety of shapes.

The structures of almost all Sikh shrines are a combination of the trabeated and arcuated system. The fenestrations with lintel on top are normally provided in recessed blind cusped arches. The cusped arches are used in elevation in interiors as well as exteriors. In old historical Gurudwaras, the surfaces were treated with lime or gypsum plaster moulded into cornices, pilasters, and other structural as well as non-structural embellishments.

A repeated element of Gurudwara design is the preferred usage of three or four storeyed structures. The ground and first floors are used as main shrine with a hall for congregation, a sukhasan room and rooms for akhand paths. Whereas on the top floor, there is normally an open square or approximately square pavilion having three arched opening on each side. Each side of the room has three openings formed by tapering pilasters and cusped arches. This is provided to give sufficient elevation to the central dome of the shrine. By constructing the dome over this pavilion Sikhs wanted their shrines to have a profile in which the central dome is clearly visible from a distance. The pavilion is surmounted by a dome, lined at its base with a number of smaller cupolas. The dome is built with an inverted lotus pattern at base and the kalasa on top of it.

Fluted pilaster decorates corners of the shrines. Typically the elevation of the square shrines on each side is divided into three parts. On both the corners, a balconied window, decorated with cusp arch with elliptical tapering mass on top and supported by decorative brackets is provided. The central rectangular part is further divided into three rectangular parts with blind cusped arches and fluted tapering pilasters in each of this division. The facades on all the sides have almost similar architectural schemes. On top,
the parapet is intercepted by four pillared kiosks one at each corner crowned with dome. Eaves are the chajjas i.e. lower portion of the roof projecting beyond the face of the wall. In a Gurudwara, there is an eave (slanting chajjas) at ceiling level of ground floor (in some cases it is provided at the ceiling level of first floor). The eaves act as the horizontal dividing line of the elevation. In some cases, the eaves are supported by means of beautiful brackets at the façade of the main shrine. At the terrace level kiosks, Chhatri and cupolas are extensively used as an element for decoration. Kiosks and Chhatris are the elements which also have been used in Rajput as well as Mughal architecture extensively. Various types of finishing materials and architectural elements used in elevation are detailed out in Annexure IV.

6.6. Architectural Elements

Various architectural elements commonly used in a Gurudwara, are dome, kiosks, Chhatris, cupolas, arches, balconied windows and the jaalis. Typical feature of a Gurudwara is the multiplicity of chattris, kiosks and cupolas, decorating the parapets and corners at terrace level. Crowning feature of a shrine is the fluted or ribbed dome. Generally, these domes are white or sometimes gilded. Normally these domes are either painted white or lined with marble pieces or white porcelain tile pieces. Most of the prominent historical shrines are covered with gold plated copper sheets. In many Gurudwaras, balconied windows with shallow elliptical eaves and supported on carved brackets are used. Slanting overhanging eaves are used as an element emphasizing the string course to decorate the lower structure and the parapet. Elliptical eaves with cusped soffits are used at the base of the dome. The surface treatment often creates geometrical, floral and other designs. In shrines like Harmandar Sahib, Amritsar and Darbar Sahib Tarn Taran, work in brass and copper gilt sheeting is introduced with lavishness to create the grandeur. Various architectural elements of Sikh shrines are discussed in the following sections.

6.6.1. The Arches of Sikh Shrines

In the Sikh shrines, the fenestrations, both entrance doors and windows, are of arcuated and trabeated type. In some cases, the openings have an arched form and in others there is a lintel over openings. Sometimes, combination of both these construction methods has been used in many shrines. Normally, in case of lintel also, a blind recessed arch is provided around openings and number of arched recesses can be seen on the facade of shrines. The Sikh shrines offer interesting varieties in respect of the types and forms of
One can find cusped, semicircular, elliptical arches with or without cusps, and pseudo three-centered arches in various sizes. The most common and popular type of arch of the Sikh shrines is the cusped or multifoliated arch. The number of foliation or cusps in majority of the cases is nine, similar to the arches used during the Shah Jehan’s period. Nine-cusped arch has been recognised as a distinct architectural element of the period of Shah Jehan (1627-58). Arches are the omnipresent elements of Sikh architecture. Following types of arches have been used in Sikh shrines:

a. Cusped Arch,
b. Three-Centered Cusped Arch,
c. Elliptical Cusped Arch,
d. Cusped Drop Arch,
e. Three-Centered Arch,
f. Pseudo Three-Centered Cusped Arch,
g. Pseudo Three-Centered Arch,
h. Cusped Three Centered,
i. Recessed Cusped Arch,
j. Cusped Arch with each cusp having three smaller cusps,
k. Elliptical cusped with each cusp having three smaller cusps,

Although the most commonly used arch in the Sikh shrines is cusped arches in which the arch shows a number of foliations or cusps. In Sikh shrines, multiple foliations or cusps are noticed in the arches. The number in most of the cases is found to be nine, but the arches with seven and eleven cusps have also been used in some of the shrines. In case of elliptical arches, fifteen cusped have been used at Chheharta Sahib at Amritsar arches. Even seventeen cusped elliptical arches have also been used at Shaheedan Sahib at Amritsar and San Sahib at Baserke. At Gurudwara Tap Asthan Baba Buddha, Ramdass, an elliptical arch with thirteen cusps has been used.

Figure 6.74: Cusped Arches in the Sikh Shrines
Average span depth ratio of the arches is 2.1, with a minimum of 0.69 of cusped drop arch at Gurudwara Fatehgarh Sahib at Fatehgarh sable and a maximum of 5.35 of an elliptical cusped arch at Gurudwara San Sahib at Baserke near Amritsar. In case of cusped drop arches, span depth ratio is less than one. Cusped arches have wide range of span depth ratio varying from approximately 1 to 3. In case of elliptical, elliptical cusped and pseudo three-centered cusped arch, span depth ratio is on higher side because of the wide span as compared to rise. Maximum span of 12.70m and rise of 2.66m has been provided at Shaheedan Sahib (Amritsar), minimum span of 0.340m and rise of 0.38m is provided in Gurudwara Sant Ghat Sahib (Sultanpur Lodhi). Average span of the arch in the documented shrines is 2.37m and rise is 1.11m. Drawings of various types of arches used in the Sikh shrines with their span, rise and proportions are shown on plate number XLVI to LI. Table containing detailed dimensions of the arches is attached as Annexure V.

6.6.2. Domes

Domes are important part of religious architecture throughout the world and are the crowning feature of a Sikh shrine as well. In a rare case, a Sikh shrine may be flat roofed, as in the case of Gurudwara Thara sahib at Amritsar. The Sikh shrines have an impressive visual effect, because of the use of various types and forms of the domes, which serve as the central superstructure and beautify the kiosks of the shrines. Domes have always fluted or ribbed formation on the exterior surface and generally there are twelve ribs, but sixteen and twenty ribbed domes are also provided over many shrines. Mostly onion domes are used in Sikh shrines which usually have height more than the radius at the base. Such domes are larger in diameter than the drum on which it rests. These bulbous domes taper smoothly to a point, and strongly resemble the onion, after which they are named. In Gurudwaras, these domes are usually white or gold plated. Normally these domes are either painted white or lined with marble pieces or white ceramic tile pieces. Most of the prominent historical shrines are covered with gold
plated copper sheets, for example Harmandar Sahib at Amritsar, Darbar Sahib at Tarn Taran, Darbar Sahib at Dera Baba Nanak and Fatehgarh Sahib at Fatehgarh Sahib. In some shrines, at least the finial over the dome has been given gold plating like Keshgarh Sahib at Ananadpur Sahib, Katalgarh sahib at chamkaur Sahib and Kandh Sahib at Batala. Technically, using copper to clad the masonry work is considered to be the most reliable method of waterproofing to protect it from decay. Gold plating the copper is the ideal finish for the protection of these copper sheets for durability. Apart from the large central dome there are often four cupolas, one at each corner of the dome base and several cupolas embellishing the parapet.

Usually the dome springs from a floral base with the lotus petal motifs provided around it in a single row of petals e.g. Gurudwara Hatt Sahib and Ber Sahib at Sultanpur Lodhi, Baba Bir singh at Naurangabad. In many cases double rows of petals has been used e.g. Gurudwara San Sahib, Chheharta Sahib, Garhi Sahib, Bir Baba Buddha and Tap Asthan Baba Buddha. The dome of Darbar Sahib at Dera Baba Nanak is unique. It has miniature cupolas all around the octagonal base and double layer of lotus petals with small kalasa like motif on the top of upper row of lotus petals. The detail at the top of the dome is also quite different from the domes generally used in the Sikh shrines.

The dome has inverted lotus symbol at top from which rises the kalasa or finial which rises up in a cylindrical form with some concentric discs, spheroids, culminating in a small canopy. Interesting variations can be noticed in the shape of the finial. The kalasa is usually made of brass or gold plated copper but in recent construction the steel or gilded khanda (double edged sword) as finial is also commonly used.

The Sikh Architecture has also followed, almost invariably, the methodology of the square into an octagon and subsequently to a sixteen sided base for making it approach near to the circular shape so that the dome can be fitted into it. Domes of almost all

![Figure 6.76: Domes of Gurudwara Bhatha Sahib, Katalgarh Sahib, Kandh Sahib and Fatehgarh Sahib at Fatehgarh Sahib](image)
historical shrines are made in brick masonry, thus in the method of the construction and placement of the dome over the structures of Sikh shrines have mostly followed the age-old traditions of architectural experimentations. Almost in all the cases, dome rests on a square pavilion with three openings on all the sides. The top of the pavilion is rendered into a curved cave, provided with nine or eleven cusps foliation and dome is supported over it. In some cases small cupolas are provided over the cusped foliation and a cupola is provided in each of the four corners of the dome base.

Base and height ratio of most of the shrines except Harmandar Sahib (1.21), Amritsar and Achal Sahib (1.15), Batala is less than one, varying from 0.59 to 1.21, indicating that the overall height of the dome in all the cases except Harmandar Sahib and Achal Sahib is more than the diameter at the base. Average base height ratio is 0.73 with a maximum of 1.21 at Harmandar Sahib (Amritsar) and minimum of 0.59 in case of Kandh Sahib (Batala), Lohgarh and Sisganj at Anandpur. Maximum span of 8.20m and height of 13.40m is provided at Anandgarh Sahib (Anandpur Sahib), minimum span of 2.70m is provided at Sisganj (Anandpur Sahib) and minimum height of 3.46m is provided at Harmandar Sahib (Amritsar) and average span is 4.67m and rise 6.48m. Drawings of various types of domes used in the Sikh shrines with their span, rise and proportions are shown on plates number LII to LVII. Table containing detailed dimensions of the arches is attached at Annexure VI.

6.6.3. Cupola

A cupola is a dome-shaped ornamental architectural element provided on parapet at terrace level, on the corners of the dome base. The word derives from the lower Latin *cupula* (classical Latin *cupella* from the Greek *kupellon*), small cup, indicating a vault resembling an upside-down cup (“Cupola”, n.d.). Cupolas have been used in the Sikh shrines to decorate the parapets and corners of the dome base in many of the Sikh shrines. Cupolas have fluted or ribbed formation in most of the case on the exterior surface and generally there are eight ribs but twelve ribbed cupolas have also been provided over some shrines like Gurudwara Pipli Sahib (Amritsar) and Baba Bir Singh (Naurangabad). But in two cases, Angeetha Sahib (Khadoor Sahib) and Fatehgarh Sahib (Fatehgarh Sahib), cupolas without ribs have also been used.

In Sikh shrines, many varieties of Cupolas have been used with interesting variations with respect to size, type and form. Shape may vary from small cupolas with square or circular base with domical structure on top resting on the parapet to a cupola with
cylindrical form having some concentric discs, spheroids, culminating on top with domical structure. The cupola with smallest base width, 0.13m and smallest height 0.40m has been used at Harmandar Sahib (Amritsar) on top of the curved cusped eave at dome base. Largest base width of 1.05m has been provided on the four corners of the dome base at Darbar Sahib at Tarn Taran. The cupola with maximum height has been used at Kandh Sahib (Batala) with the height of 3.41m. Average base width of 0.49m and height of 1.29m has been used in Sikh shrines. Average base height ratio is 0.41 and it varies from 0.15 at Achal Sahib (Batala) with base 0.31m and height 1.95m to 0.60 at Bibeksar Sahib (Amritsar) with base 0.54 and height 0.90m. Drawings of the various types of cupolas used in Sikh shrines with their span, rise and proportions are shown on plate number LVIII and LIX. Table containing detailed dimensions of the arches is attached at Annexure VII.

6.6.4. The Kiosks

Apart from domes, the Sikh shrines have many other supplementary architectural elements used at upper floors and at the terrace level, like kiosks, chhatris and cupolas etc. In architectural terms, kiosk is a square or octagonal pavilion with a domical roof
on top. In Sikh shrines many varieties of kiosks has been used with interesting variations with respect to size, type and form to decorate the parapets and corners. Size of the kiosk may vary from a small kiosk at the corner to a room sized structure. The kiosk with smallest base width, 0.51m is used at Sant Ghat, Sultanpur Lodhi and smallest height 1.68m was used at Katalgarh sahib, Chamkaur Sahib. Largest kiosk is used at Shaheedan Sahib, Amritsar with base width of 4.30m and height of 10.24m with base height ratio of 0.42. The average base width of 2.02m and average height of 4.98m, with a base width to height ratio of 0.39, has been used in shrines taken as part of this case study. Base height ratio varies from 0.23 at San Sahib at Baserke with base 0.81m and height 3.56m to 0.61 at Harmandar Sahib, Amritsar with base 2.27 and height 3.70m. The most common type of a kiosk is a square pavilion crowned by a domical roof. Apart from square kiosks, octagonal kiosks have also been commonly used to beautify the façade of the Sikh shrines. At Harmandar Sahib, Amritsar both square and octagonal kiosks with sides having cusped arched opening has been used. The domical superstructure of the kiosks is generally similar to the main dome of the shrine. Sometimes the kiosks are provided on the raised piers, e.g. Akal Takht and the Harmandar Sahib at Amritsar. Square kiosks have either single arched opening on each side or, in case of large kiosks, may have three arched openings on each side and similarly the octagonal kiosks have arched opening on its each face. These kiosks are finished with white paint in most of the cases but in some cases like Akal Takht and the Harmandar Sahib, Amritsar these are gold plated. Drawings of the various types of kiosks used in Sikh shrines with their span, rise and proportions are shown on plate number LX to LXV. Table containing detailed dimensions of the arches is attached at Annexure VIII.

6.6.5. Chhatri

The term Chhatri means umbrella or canopy. Architecturally, chhatris are elevated dome-shaped pavilions. Chhatri originated from Rajasthan architecture where these were used as a standard feature in most of the buildings. Chhatris were also used extensively in Mughal architecture. They can be seen on monuments, like Humayun's Tomb at Delhi and the Taj Mahal at Agra (“Chhatri”, n.d.). Chhatris have also been used extensively in Rajput architecture as well. Chhatris are the typical features of Sikh architecture, which embellish the parapets, normally these are provided in the centre of the parapet or above the entrance. Chhatris
typically have rectangular plan and have curved projected eave on all sides with an elongated domical roof at top of it. *Chhatris* are decorated with floral patterns which are projected outward, similar to the lotus design at the base of the dome of the main superstructure. Normally *chhatris* have three arched opening along the longer sides and one arched opening on its shorter sides. But in two cases, Keshgarh Sahib and Anandgarh Sahib at Anandpur, *chhatri* is provided with five arched opening in front and rear. In these cases, basically small kiosks are attached on both sides with a *chhatri* in centre.

The *chhatri* with smallest base width of 1.78m is provided at Saragarhi Sahib (Amritsar) and smallest height 2.27m has been used at State Gurdwara (Kapurthala). Largest base width of 4.57m has also been provided at Anandgarh Sahib (Anandpur) and the highest *chhatri* has been used at Angeetha Sahib (Khadoor Sahib) with the height of 5.54m. Average base width of 2.91m and height of 3.62m has been used in Sikh shrines. Base height ratio varies from 0.63 at Thara Sahib, Amritsar with base width 2.60m and height 4.14m to 1.13 at Battha Sahib, District Ropar with base 3.28m and height 2.9m with a average of 0.81. Drawings of the various types of *chhatris* used in Sikh shrines with their span, rise and proportions are shown on plates number LXVI to LXVII. Table containing detailed dimensions of the arches is attached at Annexure IX.

6.6.6. *Jharokha* (Balconied Windows)

A *Jharokha* is a type of overhanging enclosed balcony, commonly used in Mughal and Rajasthan architecture. *Jharokha* jutting out from the wall surface could be used for aesthetics as well for light and ventilation. These are supported on brackets or corbelling, has two or more pillars or pilaster, balustrade and a cupola or pyramidal roof. *Jharokha* is one of the most distinctive characteristics of the façade in medieval
Rajputana and Muslim Architecture down to 19th century ("Jharokha", n.d.) e.g. balcony windows have extensively used in Hawa Mahal at Jaipur.

Several types of such windows have been used in many of the Sikh shrines with variations of shape, form and details. In some cases, even in the same shrine, one can notice such variations. Some of such windows may be in the shape of bay window having three sides projecting out of the wall. The openings in most of the cases are in the arched form and the windows are crowned with a domical roof with a floral decoration at the base.

![Figure 6.80: Balconied window: A- Akal Thakt Sahib, B-Burj Sahib, C Fatehgarh Sahib (Fatehgarh Sahib) and D-State Gurudwara](image)

Windows even with flat front façade are also found to be supported either on a series of bracket or on a curved floral body and a domical roof. For example at Harmandar Sahib Amritsar, window with five openings, three in front and one each on sides are provided in crescent form. Several varieties of such projected windows or balconies can be noticed in Akal Takht Sahib. Gurudwara Baba Atal also shows interesting type of balcony windows.

The use of these balcony windows from the functional and decorative point of view has also been used in monuments of earlier periods, like in the interior facade of Delhi Gate of the Agra Fort. Apart from the Mughal architecture, the use of balcony windows in various forms could be noticed in the architecture of the Rajputs, from whatever source the idea of the balcony windows might have been derived from, the Sikh shrines have given thought and attempted to use the variety of such windows and ornamental details. Drawings of the various types of balcony windows used in Sikh shrines are shown on plate number LXVIII and LXIX.
6.6.7. The Pillars and Pilasters

Another distinctive feature of the Sikh shrines is the presence of various types of pillars and pilasters. Pillar is a structural member basically meant for supporting the superstructure or an arch above. In some cases the pillar may be embedded into the walls of the structure, but the major part of its body projects out of it. A pilaster is used from aesthetics point of view and as a decorative element. Pilasters are used in the Sikh shrines on both the exterior and interior walls surfaces. Pilaster is present normally at the exterior corners of a shrine. Pilaster, like a pillar, can be divided into 3 basic components - the shaft, the capital, and the base. The shaft consists of multiple angular flutes. The capital consists of pot form with floral or foliage design at the top and bottom. The lotus form occupies a prominent position in the capitals, with double rows of petals. It is also provided on the sides of the openings, niches and other architectural elements. These pilaster details are integral part of the Sikh architecture, in various types. It seems to be derived from the Rajput and Mughal style. Some buildings such as Jodha Bai’s palace at Fatehpur Sikri, use pilasters at the comers.

The pillars and pilasters used in Akal Takht Sahib have various plan forms, varying from a cross to a three winged plan. On all the ends of the pilasters intricate ornamentation and carvings can be seen. The basic structure of ornamentation is in terms of the typical system of base, shaft, and capital. The shaft of the pilasters has the typical fluted character with small and big flutes present alternatively. The shafts of many columns and pilasters taper as they move up with the section at the top being significantly less than that at the bottom. High skill can be seen in the shaping out of the shaft from the solid marble blocks and uniformity and symmetry is ensured in every pilaster throughout the structure. The base and the capital of the pilasters show similar
kind of carving. They consist of a pot-form with floral designs on the top and below, or on either of the sides. The lotus pattern occupies a prominent position in capitals with double rows of petals. In fact, the artists have used their imagination in working out numerous variations in the types and forms of the capitals of the pilasters. The beauty of the pilasters is enhanced, by the carefully designed bases and the crowning elements. The pilasters of the Sikh shrines seem to be derived from the pillars of Mughal and Rajput architecture. Drawings of the typical column and pilaster used in Sikh shrines are shown on plate number LXX.

Pillars are mostly structural element where as pilasters are ornamental elements. Pillar and pilasters can be divided into three parts

a. Shaft
b. Capital
c. Base

**Shaft:** The shaft may be circular, rounded corners, square, octagonal, taper towards capital. In most of the shrines shafts are plain or with vertical lining but wherever marble columns are used, fluted or ribbed shaft having multiple angular recess and projection are used. The shaft of the pilasters had the typical fluted character with the section at the top being significantly less than that at the bottom.

**Capital:** The pot form and floral design is normally provided at the top and below the lotus pattern occupies a prominent position below. Sometimes double row lotus pattern is used and in some cases it may be tapering upward with octagonal or square capping.

**Base:** Base of the column may be square or octagonal. In some cases, it may be tapering upward. In case of pilasters, the floral design, tapering surface or lotus petals have been used.

### 6.7. The Construction Techniques

Most of the old structures are constructed in brick masonry. In some old structures brick vaults or flat domes or reinforced brick concrete had been used for ceiling. In most of the structures constructed recently reinforced cement concrete has been extensively used. In recent construction a combination of pre fabricated members like arches, cupolas and *jaali* patterns and cast in situ reinforced cement concrete work, and masonry work is commonly used. Mostly the structures are combination of two systems, e.g., trabeated or post-and-lintel, and arcuaded or based on arches.
Masonry domes are historically built in the form of rings without centring and remain stable mainly due to compression in hoop and meridional direction. In the construction of a dome over a square or octagonal structure, the basic problem is to construct the circular ring of the dome over the square or octagonal span of the building. The Sikh architecture has also followed, almost invariably, the methodology of converting the square plan into first as an octagon and then as the hexadecagon (sixteen sided shape). Finally it is converted into the circular shape for making it mach the shape of the domical member to be fitted into it. Builders resorted to the method of the applications of the squinches (the concave triangular or trapezoidal sections of vaulting) that provide transition between a dome and a square base. The squinches in the form of brackets in the interior of the rooms are provided at the corners. The method of the placement of a dome over the structures of Sikh monuments has mostly followed the age old traditions of architectural experimentations. In almost all the cases, internal brackets in the form
of squinches with foliated arches have been used. The most notable example is the construction of the ceiling of the Harmandar Sahib at Amritsar.

6.8 Material of Construction

In Punjab, one of the common material of construction in the older times was *Nanakshahi* (from the times of Nanak) bricks. Notionally, they are associated with the times of Guru Nanak, hence the name. In mid 19th century, larger size bricks came into use. Nanakshahi bricks were most commonly used for their inherent advantages. It was kind of brick of moderate dimensions used for reinforced lime concrete, structural walls and other components, which were generally very thick. The brick made mouldings, cornices, plasters, etc., was easy to work into a variety of shapes. The materials played an important role in the overall appearance and architectural character of these Gurudwaras. Information regarding the Sikh shrines constructed in the initial phase of Sikhism is not available, it may be because of the reason that these structures might have been constructed using less durable materials such as timber, mud bricks and thatch etc. and these early examples of Sikh architecture have mostly disappeared.

The Sikh shrines make use of burnt bricks with mud mortar. These materials have been widely used in Punjab. The principal binding material used in earlier times was mud mortar. Limestone was not locally available and was brought mainly from stone quarries in the Rajasthan. Lime mortar was, used for pointing to make the mud mortar joints water-resistant. It was considered to be the material of rich people at that time as it was generally used by the rich for surface decoration on their buildings. The choice of material used in the shrines indicates the significance of the building and the status of the patron. The *Nanakshahi* bricks used in the Harmandar Sahib complex are small in size 200X100X40 mm (8”X4”X1½”), though this size varies. Bricks of size 150X110X30 mm, 140X100X20 mm have also been used. The mortar was made with burnt lime, burnt clay, and ash from the lime kiln. The aggregates used, included fine or coarse sand, additives consisted of organic fibrous material, pulses and jaggery, etc. The proportions, texture etc. varied depending on the geographic location, type and scale of the shrine and patron etc. Bricks with lime mortar were used for structural members like foundations, walls, arches and roofing systems like flat dome or vaults. In the Gurudwaras, constructed during last century, the bricks and reinforced cement concrete were the main construction materials.
The surfaces were treated with lime or gypsum plaster which was moulded into eaves, pilasters, and other structural as well as non-structural embellishments. The ornamentation has been done in Gach work on the ceilings as well as walls. Marble has been used in many ancient structures, monuments etc. It had also been widely used in Mughal architecture. Marble has been used to decorate the surfaces, especially the outer facade of many Sikh shrines. The white marble found use more as cladding or decorative material than for meeting structural needs.

Gilded copper sheets have also been extensively used in embellishing many Sikh shrines like Harmandar Sahib at Amritsar, Fatehgarh Sahib at Fatehgarh, and Darbar Sahib at Tarn Taran etc. These sheets are not affected by weathering agents like moisture and temperature variation. In earlier times gold leaf was applied on the surface of the copper sheets by beating gold warq on the sheets. There were many types of process of gilding well known in ancient time. One of them was cold working in which the gold pieces were rolled into thin sheets known as warq. It was in the 18th century that people began to work with metal when hot. In the present times gilding by electroplating is much in use. Major advantage of this process is that the thickness could be reduced more easily.

6.9. Summary

This chapter analyses the various architectural elements and features provided in the Sikh shrines. It also discusses and analyses the results of the dimensional study of the Gurudwaras. With the passage of time, the Gurudwaras has seen a great rush of devotees. Rather than serving a local community, a number of people from far off places visit Gurudwaras. This increase in ground area of a Gurudwara may be attributed to several reasons. Rise in spiritual tourism may be one of the reasons. Due to the improved connectivity and modes of transportation, people have become more mobile and they visit religious places more frequently. Similar kind of analysis has been carried out for other dimensions. Further this chapter discusses the various plan forms, architectural elements like domes, chhatris, arches, kiosks, cupolas and pilaster etc. along with their proportions. It also discusses the materials and construction techniques used by the Sikhs for constructing their shrines.